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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,141	07/11/2003	Martin Kaiser	13909-142001 / 2003P00391	1406
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FISH & RICHARDSON, P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			DAYE, CHELCIE L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/617,141	<b>Applicant(s)</b> KAISER ET AL.	
	<b>Examiner</b> Chelcie Daye	<b>Art Unit</b> 2161	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/17/04 &amp; 2/11/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

1. This action is issued in response to Application filed on June 30, 2003.
2. Claims 1-20 are pending.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-3,5-7,9-13,15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tang (US Patent No. 5,454,102).**

Regarding Claim 1, Tang discloses a method comprising:

storing data objects as nodes in a directed graph<sup>1</sup> (column 3, lines

45-50, Tang); and

storing path information<sup>2</sup> (column 5, lines 36-38,Tang) for a first

object corresponding to a first node (Fig. 9, item 201, Tang; wherein a first

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<sup>1</sup> Examiner notes a directed graph is also known as a node network (column 1, lines 62-66, Tang).

Art Unit: 2161

object corresponds to “message list”), where the path information provides relational information about a direct path (column 4, lines 26-34, Tang) through the directed graph between the first node (Fig. 9, item 201, Tang) and a second node (Fig. 9, item 212, Tang), where the second node (Fig. 9, item 212, Tang) is separated from the first node (Fig. 9, item 201, Tang) along the direct path by at least a third node (Fig. 9, item 211, Tang).

Regarding Claim 2, Tang discloses a method further comprising:  
accepting a query regarding the first node (column 9, lines 56-61, Tang);  
locating the first object (columns 9-10, lines 66-67 and 1-2, respectively, Tang); and  
accessing the path information to respond to the query (column 10, lines 2-13, Tang).

Regarding Claim 3, Tang discloses a method wherein storing data objects comprises:  
storing each data object in a first column of a data table (Fig.8, item 84, Tang); and  
storing a relation (column 8, lines 54-59, Tang) of the first data object<sup>3</sup> to a consecutive data object<sup>4</sup> in a second field of the data table

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<sup>2</sup> Examiner notes the storing of path information corresponds to pointer tags, which point to elements of the nodes.

<sup>3</sup> First data object corresponds to Recipient #1.

(Fig. 8, Tang), where the consecutive data object is connected to the first data object in the directed graph by a single edge (Fig. 9, items 204 and 205; column 10, lines 58-60, Tang).

Regarding Claim 5, Tang discloses a method wherein storing path information comprises storing a data string as the path information (column 11, lines 15-16, Tang; wherein data strings correspond to the text being stored within the pointer tags), where the data string includes at least the second node and the third node (column 5, lines 64-67, Tang; wherein the second node corresponds to nodes 50 and 51, and the third node corresponds to nodes 49 and 47).

Regarding Claim 6, Tang discloses a method comprising comparing the data string (column 4, lines 29-31, Tang) to a query regarding the first node (column 9, lines 56-61, Tang), in order to respond to the query (column 7, lines 1-5, Tang).

Regarding Claim 7, Tang discloses a method wherein storing the data string comprises:

determining a first direct path through the directed graph of which the first node is a part (column 11, lines 1-12, Tang; wherein a first direct

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<sup>4</sup> Consecutive data object corresponds to Facsimile.

Art Unit: 2161

path consists of node 201(i.e. first node) corresponding to node 227, corresponding to node 229);

determining a first data string based on the first direct path (column 11, lines 12-14, Tang; wherein a first data string corresponds to node 230 "component ID");

determining a second direct path through the directed graph of which the first node is a part (columns 9 and 10, lines 66-67 and 1-13, Tang; wherein a second direct path consists of node 201(i.e. first node) corresponding to node 209, corresponding to node 210, corresponding to node 211);

determining a second data string based on the second direct path (column 10, lines 13-16, Tang; wherein a second data string corresponds to node 212 "ID data"); and

concatenating the first data string and the second data string for storing as the path information (column 12, lines 16-27, Tang).

Regarding Claim 9, Tang discloses a method wherein the directed graph includes a hierarchical, multi-leveled data structure (Fig. 4, Tang).

Regarding Claim 10, Tang discloses a method wherein storing path information comprises updating the path information to reflect changes in the directed graph (column 5, lines 60-63, Tang).

Regarding Claim 11, Tang discloses an apparatus comprising a storage medium having instructions stored thereon, the instructions including:

- a first code segment for storing data objects within a table (Fig.8, Tang);

- a second code segment for storing a relation of a first data object to a second data object in the table (column 8, lines 54-59,Tang), where the first data object and the second data object correspond to consecutive nodes on a directed graph (Fig. 9, items 204 and 205; column 10, lines 58-60, Tang); and

- a third code segment for storing path information (column 5, lines 36-38,Tang) associated with the first data object in the table (column 5, lines 33-38, Tang), where the path information describes a path within the directed graph (column 4, lines 26-34, Tang) that is between the first node (Fig. 9, item 201, Tang), the second node (Fig. 9, item 212, Tang), and a third node (Fig. 9, item 211, Tang).

Regarding Claim 12, Tang discloses an apparatus further comprising:

- a fourth code segment for accepting a query about the first node (column 9, lines 56-61, Tang) and a possible relation (column 4, lines 26-34, Tang) of the first node (Fig. 9, item 201, Tang) to another node within the directed graph (Fig. 9, item 212, Tang); and

a fifth code segment for responding to the query based on the path information (column 10, lines 2-13, Tang).

Regarding Claim 13, Tang discloses an apparatus wherein the fifth code segment includes a sixth code segment for detecting the first data object within the table and comparing the path information (column 4, lines 29-31, Tang) to the query (column 9, lines 56-61, Tang).

Regarding Claim 15, Tang discloses an apparatus wherein the third code segment stores the path information as a data string (column 11, lines 15-16, Tang; wherein data strings correspond to the text being stored within the pointer tags) listing the second node and the third node (column 5, lines 64-67, Tang; wherein the second node corresponds to nodes 50 and 51, and the third node corresponds to nodes 49 and 47).

Regarding Claim 17, Tang discloses a system comprising:

means for accessing path information (column 10, lines 2-13, Tang) that describes a path through a directed graph (column 4, lines 26-34, Tang) between a first node (Fig. 9, item 201, Tang) and a plurality of other nodes (Fig. 9, items 202,203,204, Tang); and

means for responding to a query involving the first node, based on the path information (column 7, lines 1-5, Tang).



Regarding Claim 18, Tang discloses a system wherein the means for accessing path information comprises means for storing the path information (column 5, lines 36-38, Tang) or a reference to the path information in a table (Fig.8, item 84, Tang) containing a first data object corresponding to the first node (Fig. 9, item 201, Tang; wherein a first node corresponds to "message list").

Regarding Claim 19, Tang discloses a system wherein the means for responding to the query comprises means for directly locating the first data object within the table (column 4, lines 29-31, Tang) in response to the query (column 7, lines 1-5, Tang).

Regarding Claim 20, Tang discloses a system wherein the means for responding to the query comprises means for performing a pattern match between the query (column 9, lines 56-61, Tang) and a data string listing the path through the directed graph (column 4, lines 29-31, Tang).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2161

**6. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang (US Patent No. 5,454,102) as applied to claims 1-3,5-7,9-13,15, and 17-20 above, and further in view of Schultz (US Patent No. 6,006,233).**

Regarding Claim 4, Tang discloses a method for storing path information (column 5, lines 36-38,Tang). However, Tang does not explicitly disclose storing the path information in a third field of the data table. On the other hand, Schultz discloses storing the path information in a third field of the data table (column 9, Table 5, Schultz). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Schultz's teachings into the Tang system. A skilled artisan would have been motivated to combine in order to permit the user access in distinguishing between the different fields of the table. Tang and Schultz are analogous art because they are from the same field of endeavor of retrieving related data within a directed graph. As a result, this allows more clarity into understanding how the different objects are associated and what course was taken to retrieve the outcome.

Regarding Claim 14, the combination of Tang in view of Schultz discloses an apparatus wherein the first data object ("Recipient #1", Tang), the second data object ("Facsimile", Tang), and the path information (column 5, lines

Art Unit: 2161

36-38, Tang) are stored in separate columns of a single row of the table (column 9, Table 5, Schultz).

**7. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang (US Patent No. 5,454,102) as applied to claims 1-3,5-7,9-13,15, and 17-20 above, and further in view of Andrei (US Patent No. 6,801,905).**

Regarding Claim 8, Tang discloses a method for storing path information (column 5, lines 36-38, Tang). However, Tang does not explicitly disclose transforming the relational information into a coded value. On the other hand, Andrei discloses transforming the relational information into a coded value (column 11, lines 33-39, Andrei). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Andrei's teachings into the Tang system. A skilled artisan would have been motivated to combine in order to improve the communication between the system and the hardware. Tang and Andrei are analogous art because they are from the same field of endeavor of optimizing queries. As a result, the transformation into code allows the system to more easily create, maintain, and adapt for use in other databases and computer systems.

Regarding Claim 16, the combination of Tang in view of Andrei discloses an apparatus wherein the third code segment stores the path information as a coded value (column 11, lines 33-39, Andrei) generated

Art Unit: 2161

from information about the second and third node (column 5, lines 64-67, Tang; wherein the second node corresponds to nodes 50 and 51, and the third node corresponds to nodes 49 and 47) and their locations within the directed graph (column 4, lines 29-31, Tang).

#### ***Other Prior Art Made of Record***

1. Tenev et al. (US Patent No. 6,654,761) discloses a method, which automatically traverses a set of elements of a node-link structure, an iteration modifies the part of node-link data defining the structure that is in memory.
2. Green et al. (US Patent No. 4,829,427) discloses an optimizer-code generator for use in a data base system. The optimizer-code generator employs a component called a scan analyzer for performing implementation-dependent analysis and providing implementation-dependent query code.

#### ***Points of Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chelcie Daye whose telephone number is 571-272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 571-272-4023. The fax

Art Unit: 2161

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chelcie Daye  
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January 11, 2006



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